SEROLOGICAL INVESTIGATION FOR TREPONEMAL INFECTION OF ARTISAN RECRUITS IN SOUTH PERSIA*

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Routine serological examination of candidates for artisan employment with the Anglo-Iranian Oil Company in Abadan began in the autumn of 1949, and 1,725 reports were available by the spring of 1950. The men were all subjected to physical examination, and apart from occasional reports of an old genital scar none of them had any clinical evidence of syphilis at the time of the serological investigations. The candidates were not drawn from Abadan alone but from all parts of South Persia, with a leavening of migrants from the North.

Tests Employed

The slide flocculation test described by Berger (1943) was first used in Abadan in 1945. In a preliminary series of 5,000 tests, both Berger's test and the Harrison-Wyler complement-fixation test described by Wyler (1929) were employed for each examination. Although no positive complement-fixation test occurred with a completely negative slide flocculation, it was found that weak flocculations were frequently accompanied by negative complement-fixation tests. A strong flocculation reaction rarely failed to show a positive complement-fixation test. Berger's test was therefore introduced as a screen test, the specimens showing no flocculation being reported " negative ". Specimens from patients under treatment were subjected to Berger's test only, the degree of flocculation being used as an index of progress or relapse. Where a strong flocculation reaction persisted in spite of treatment, a series of quantitative Kahn reactions was carried out. The remainder of the specimens from persons with no clinical evidence of syphilis, which showed a positive reaction to Berger's test was subjected to complement-fixation tests. The screen test thus effected a great reduction in the number of complement-fixation reactions performed. In 1945 an average of thirty sera were sent in weekly, and in 1949 the number rose at one time to 400 a week. This number of complement-fixation tests would have converted a general routine laboratory into a " Wassermann " laboratory and diverted technicians from other duties.

The same procedure has been followed in the examination of artisan recruits. A negative Berger's test was accepted as evidence of a negative Wassermann reaction ; any positive reaction in Berger's test was followed by a complement-fixation test and a negative report was made in the cases which gave no complement fixation.

The fact that the observations were made in the cool season is of importance. The instability of Wassermann reaction antigen which is liable to develop during the intense heat of summer in this region was pointed out by Marsh (1929), and, although more efficient cooling is now available in the laboratory, working temperatures over 90°F. may still be encountered. During the period of investigation of the recruits the room temperature varied between 65° and 80°F.

Results

The candidates fell into two distinct groups: boys of the apprentice class, and grown men. The results are shown in the following Table.

Age Group	Strong Positive	Positive	Negative	Per cent. Positive
14–17	9	2	421	2·5
18–25	56	9	792	7·6
26–30	22	2	193	11·0
Over 31	17	1	201	8·2

It will be seen that 107 (8·3 per cent.) of the 1,293 men, and eleven (2·5 per cent.) of the 432 boys gave positive reactions.

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Discussion

The complement-fixation test for syphilis is empirical and it is well known that positive reactions may sometimes occur in yaws, leprosy, typhoid fever, malaria, kala-azar, vaccinia, and other diseases, as well as in normal healthy persons. However, yaws and kala-azar are unknown in the area, only three or four cases of leprosy are seen annually on the island, and it is highly improbable that persons in the active phase of typhus or typhoid fever would present themselves for employment.

Malaria is a serious health problem in many places in Persia but Mackie and McCartney (1948) state :

> In Malaria positive reactions (in the complement-fixation test for syphilis) are sometimes present, though they are as a rule quantitatively weak . . .

As most of the positive findings in the present series were strong ones, it seems unlikely that malarial infection exercised more than a trivial influence on the results.

The normal individual with a positive reaction is a very rare phenomenon and it is felt that these figures can be taken as a rough guide to the probable incidence of latent syphilis in South Persia.

Summary

The results of the serological investigation of 432 boys between the ages of 14 and 17, and of 1,293 men over the age of 18 applying for employment at Abadan in South Persia, are reported.

Eleven (2·5 per cent.) of the boys, and 107 (8·3 per cent.) of the men gave positive or strong-positive complement-fixation reactions.

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